

## **CURRICULUM VITAE**

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### **EDUCATION:**

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY**  
S.B., Economics, Politics and Science, 1965  
Ph.D., Economics, 1970

### **EMPLOYMENT:**

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY**  
1991- Director, Center for Energy and Environmental Policy Research  
1988- Gordon Y Billard Professor of Economics and Management  
1986- Professor, Department of Economics  
1979- Professor, Sloan School of Management  
1977-79 Associate Professor, Sloan School of Management  
1970 Assistant Professor, Sloan School of Management (Spring)  
1967-69 Instructor, Sloan School of Management

**PRESIDENT'S COUNCIL OF ECONOMIC ADVISORS**  
1989-91 Member  
1967 Junior Staff Economist (Summer)

**UNIVERSITY OF CALIFORNIA, SAN DIEGO**  
1974-77 Associate Professor, Department of Economics  
1970-74 Assistant Professor, Department of Economics

### **VISITING APPOINTMENTS:**

1985-86 Visiting Professor, Harvard Business School  
1985 Visiting Professor, CORE, University of Louvain, Belgium (Spring)  
1980-81 Visiting Scholar, Department of Economics, Harvard University  
1973-74 Visiting Associate Professor and Research Fellow, Department of Economics, University of Louvain, Belgium

### **PROFESSIONAL ACTIVITIES:**

Editorial Board: *Journal of Economics and Management Strategy* (1992-)  
Associate Editor: *Journal of Economic Perspectives* (1992-)  
Associate Editor: *Zeitschrift fur Nationalokonomie* (1987-89)  
Associate Editor: *International Journal of Industrial Organization* (1982-89)  
Board of Editors: *American Economic Review* (1982-86)

Editor (1978-89), Co-Editor (1989-): MIT Press Monograph Series, *Regulation of Economic Activity*

Associate Editor (1977-81), Board of Editors (1981-89): *Journal of Industrial Economics*

Nominating Committee, American Economic Association (1987)

Advisory Committee on Meetings Program, American Economic Association (1986, 1989)

Chairman: Local Arrangements Committee, Econometric Society World Congress (1985)

Fellow: Econometric Society (1982-)

Chairman: Program Committee, Econometric Society North American Fall Meeting (1980)

Program Committee, Econometric Society World Congress (1980)

Area Head: Economics, Finance, and Accounting; Sloan School of Management (1987-89)

Coordinator: Applied Economics Group, Sloan School of Management (1986-87)

Chairman: Doctoral Program Committee, Sloan School of Management (1982-85)

Research Associate, National Bureau of Economic Research (1992-)

Board of Directors, Long Island Lighting Company (1992-)

Special Consultant: National Economic Research Associates, Inc. (1981-89, 1991-)

Consultant, Bureau of Economics, Federal Trade Commission (1972-81)

Environmental Economics Advisory Board, U.S. Environmental Protection Agency, (1992-

Chairman: Clean Air Act Compliance Analysis Council, U.S. Environmental Protection Agency, (1992-)

Board of Directors, American Council for Capital Formation Center for Policy Research (1991-)

Donald Gilbert Memorial Lecture, University of Rochester (1992)

#### **BOOKS WRITTEN:**

*The Economics of Advertising* (Vol. 80, Contributions to Economic Analysis), Amsterdam: North-Holland, 1972.

*Applied Microeconomics: Problems in Estimation, Forecasting and Decision-Making*, San Francisco: Holden-Day, 1973.

*An Introduction to Applied Macroeconomics* (with E. Kuh), Amsterdam: North-Holland, 1973. Japanese Edition, Tokyo: McGraw-Hill Kogakusha, 1975.

*The Control of Natural Monopolies*, Lexington: D.C. Heath (Lexington Books), 1979.

*Markets for Power: An Analysis of Electric Utility Deregulation* (with P.L. Joskow), Cambridge: MIT Press, 1983.

*Economics*, 2nd Edition (with S. Fischer and R. Dornbusch), New York: McGraw-Hill, 1988.

**BOOKS EDITED:**

*The Empirical Renaissance in Industrial Economics* (co-editor, with T.F. Bresnahan), Oxford: Basil Blackwell, 1987.

*Handbook of Industrial Organization* (co-editor, with R.D. Willig), Amsterdam: North-Holland, 1989.

**JOURNAL ARTICLES:**

"Regulation and the Durability of Goods," *Bell Journal of Economics and Management Science*, Vol. 1 (Spring 1970), pp. 54-64.

"Consumer's Surplus and Producer's Goods," *American Economic Review*, Vol. 61 (September 1971), pp. 682-687.

"A Note on Monopolistic Competition and Excess Capacity," *Journal of Political Economy*, Vol. 80 (May/June 1972), pp. 586-591.

"Option Demand and Consumer's Surplus: Valuing Price Changes Under Uncertainty," *American Economic Review*, Vol. 62 (December 1972), pp. 813-824.

"A Note on the Theory of Vertical Integration," *Journal of Political Economy*, Vol. 81 (March/April 1973), pp. 442-449.

"Brand Loyalty and Barriers to Entry," *Southern Economic Journal*, Vol. 40 (April 1974), pp. 579-588.

"Market Structure, Durability, and Maintenance Effort," *Review of Economic Studies*, Vol. 41 (April 1974), pp. 277-287.

"Estimating the Costs and Benefits of Utility Regulation," *Quarterly Review of Economics and Business*, Vol. 14 (Summer 1974), pp. 51-64.

"Consumer Behavior versus Economic Theory," *Recherches Economiques de Louvain*, Vol. 40 (September 1974), pp. 261-276.

"Alternative Models of Bandit Selection," *Journal of Economic Theory*, Vol. 10 (June 1975), pp. 333-342.

"An Experimental Study of Expectation Formation," *Econometrica*, Vol. 44 (January 1976), pp. 17-41.

"Another Look at the Social Valuation of Input Price Changes," , Vol. 66 (March 1976), pp. 239-243.

"Resource Exploitation Theory and the Behavior of the Oil Cartel," *European Economic Review*, Vol. 7 (April 1976), pp. 257-279.

"Advertising and Profitability: Further Implications of the Null Hypothesis," *Journal of Industrial Economics*, Vol. 25 (September 1976), pp. 45-54.

"A Model of Promotional Competition in Oligopoly," *Review of Economic Studies*, Vol. 43 (October 1976), pp. 493-507.

"Is More Competition Necessarily Good?" *Industrial Organization Review*, Vol. 4 (1976), pp. 120-121.

"Public Investment Criteria, Insurance Markets, and Income Taxes," *Journal of Public Economics*, Vol. 6 (November 1976), pp. 425-445.

"Valuing Changes in Regulated Firms' Input Prices," *Southern Economic Journal*, Vol. 43 (January 1977), pp. 1346-1351.

"Using the H Index of Concentration with Published Data," *Review of Economics and Statistics*, Vol. 59 (May 1977), pp. 186-193.

"Comparative Static Properties of Regulated Airline Oligopolies," *Bell Journal of Economics*, Vol. 8 (Autumn 1977), pp. 565-576.

"Nonconvexity and Optimal Exhaustion of Renewable Resources" (with T.R. Lewis), *International Economic Review*, Vol. 18 (October 1977), pp. 535-552.

"Common Stock Volatility Expectations Implied by Option Premia" (with R.R. Trippi), *Journal of Finance*, Vol. 33 (March 1978), pp. 129-147.

"A Note on Economies of Scale and Natural Monopoly in the Distribution of Public Utility Services," *Bell Journal of Economics*, Vol. 9 (Spring 1978), pp. 270-276.

"A Model of Advertising and Product Quality," *Journal of Political Economy*, Vol. 87 (June 1978), pp. 485-504.

"Life-Cycle Costing for Consumers of Energy-Conserving Devices" (with S.S. Penner and M.R. Brambley), *Energy*, Vol. 3 (July/August 1978), pp. 415-419.

"Entry Deterrence in the Ready-to-Eat Breakfast Cereal Industry," *Bell Journal of Economics*, Vol. 9 (Autumn 1978), pp. 305-327.

"Market Structure, Durability, and Quality: A Selective Survey," *Economic Inquiry*, Vol. 17 (April 1979), pp. 177-198.

"On the Use of Economic Models in Antitrust: The RealLemon Case," *University of Pennsylvania Law Review*, Vol. 127 (April 1979), pp. 994-1050. Also in *Antitrust Law and Economics* (O.E. Williamson, Editor), Houston: Dame Publications, 1980, pp. 97-153.

"Nonconvexity and Optimal Harvesting Strategies for Renewable Resources" (with T.R. Lewis), *Canadian Journal of Economics*, Vol. 12 (November 1979), pp. 677-691.

"Appropriate Government Policy Toward Commercialization of New Energy Supply Technologies," *Energy Journal*, Vol. 1 (April 1980), pp. 1-40.

"Advertising and Aggregate Consumption: An Analysis of Causality" (with R. Ashley and C.W.I. Granger), *Econometrica*, Vol. 48 (July 1980), pp. 1149-1168.

"On Oligopolistic Markets for Nonrenewable Natural Resources" (with T.R. Lewis), *Quarterly Journal of Economics*, Vol. 95 (November 1980), pp. 475-491.

"Qualitative Asymptotic Synthesis in Simple Optimal Control Problems," *Economic Letters*, Vol. 5 (1980), pp. 349-352.

"Output and Welfare Implications of Monopolistic Third-Degree Price Discrimination," *American Economic Review*, Vol. 71 (March 1981), pp. 242-247.

"Risk and Return on Long-Lived Tangible Assets," *Journal of Financial Economics*, Vol. 9 (June 1981), pp. 185-205.

"Monopolistic Two-Part Pricing Arrangements," *Bell Journal of Economics*, Vol. 11 (Autumn 1981), pp. 445-466.

"Economies of Scale and Barriers to Entry," *Journal of Political Economy*, Vol. 89 (December 1981), pp. 1228-1238.

"Commodity Bundling by Single-Product Monopolies," *Journal of Law and Economics*, Vol. 25 (April 1982), pp. 67-71.

"Antitrust and the New Industrial Economics," *American Economic Review*, Vol. 72 (May 1982), pp. 24-28.

"Cartel Deception in Markets for Nonrenewable Resources" (with T.R. Lewis), *Bell Journal of Economics*, Vol. 13 (Spring 1982), pp. 263-171.

"Another Look at Market Power," *Harvard Law Review*, Vol. 95 (June 1982), pp. 1789-1816.

"Product Differentiation Advantages of Pioneering Brands," *American Economic Review*, Vol. 72 (June 1982), pp. 349-365. ("Errata," *AER*, Vol. 73 (March 1983), p. 250).

"George Stigler's Contributions to Economics," *Scandinavian Journal of Economics*, Vol. 85 (March 1983), pp. 77-86.

"Advertising and Entry Deterrence: An Exploratory Model," *Journal of Political Economy*, Vol. 91 (August 1983), pp. 636-653.

"The Impact of Scale and Media Mix on Advertising Agency Costs" (with A.J. Silk and R. Bojanek), *Journal of Business*, Vol. 56 (October 1983), pp. 453-475.

"Gaussian Demand and Commodity Bundling," *Journal of Business*, Vol. 57 (January 1984), pp. S211-S230.

- "Estimating Effective Concentration in Deregulated Wholesale Electricity Markets" (with B.W. Golub), *RAND Journal of Economics*, Vol. 15 (Spring 1984), pp. 12-26.
- "Imperfect Information and the Equitability of Competitive Prices," *Quarterly Journal of Economics*, Vol. 99 (August 1984), pp. 441-460.
- "Adversary Hydro Relicensing Applications: Using Economic Efficiency Criteria" (with P.L. Joskow), *Public Utilities Fortnightly*, Vol. 114 (20 December 1984), pp. 22-28.
- "Econometric Diagnosis of Competitive Localization," *International Journal of Industrial Organization*, Vol. 3 (March 1985), pp. 57-70.
- "Do Markets Differ Much?" *American Economic Review*, Vol. 75 (June 1985), pp. 341-351.
- "Estimated Parameters as Independent Variables: An Application to the Costs of Electric Generating Units" (with P.L. Joskow), *Journal of Econometrics*, Vol. 31 (April 1986), pp. 275-305.
- "Incentive Regulation for Electric Utilities" (with P.L. Joskow), *Yale Journal on Regulation*, Vol. 4 (Fall 1986), pp. 1-49.
- "The Empirical Renaissance in Industrial Economics: An Overview" (with T.F. Bresnahan), *Journal of Industrial Economics*, Vol. 35 (June 1987), pp. 371-378.
- "Collusion versus Differential Efficiency: Testing Alternative Hypotheses," *Journal of Industrial Economics*, Vol. 35 (June 1987), pp. 399-425.
- "Ease of Entry: Has the Concept Been Too Readily Applied?" *Antitrust Law Journal*, Vol. 56 (1987), pp. 41-51.
- "The Performance of Coal-Burning Electric Generating Units in the United States: 1960-1980" (with P.L. Joskow), *Journal of Applied Econometrics*, Vol. 2 (April 1987), pp. 85-109.
- "Horizontal Merger Policy: Problems and Changes," *Journal of Economic Perspectives*, Vol. 1 (Fall 1987), pp. 41-54.
- "Competitive Advantage and Collusive Optima," *International Journal of Industrial Organization*, Vol. 5 (December 1987), pp. 351-367.
- "Industrial Economics: An Overview," *Economic Journal*, Vol. 98 (September 1988), pp. 643-681. Also in *Surveys in Economics*, Vol. 2 (A.J. Oswald, Editor), Oxford: Basil Blackwell, 1991, pp. 51-89.
- "Perceptual Maps and the Optimal Location of New Products: An Integrative Essay" (with J.F. Thisse), *International Journal of Research in Marketing*, Vol. 5 (1988), pp. 225-249.

"Intra-Industry Profitability Differences in U.S. Manufacturing: 1953-1983," *Journal of Industrial Economics*, Vol. 37 (June 1989), pp. 337-357.

"An Expository Note on Depreciation and Profitability Under Rate-of-Return Regulation," *Journal of Regulatory Economics*, Vol. 1 (September 1989), pp. 293-298.

"Good Regulatory Regimes," *RAND Journal of Economics*, Vol. 20 (Autumn 1989), pp. 417-436.

"Regulation and Antitrust in the Bush Administration," *Antitrust Law Journal*, Vol. 58 (1989), pp. 475-480.

"Continuity and Change in the Economics Industry," *Economic Journal*, Vol. 101 (January 1991), pp. 115-121. Also in *The Future of Economics* (J.D. Hey, ed.), Oxford: Basil Blackwell, 1992, pp. 115-121.

"Sunk Cost and Market Structure: A Review Article," *Journal of Industrial Economics*, Vol. 40 (June 1992), pp. 125-134.

#### CHAPTERS IN BOOKS:

"Advertising and Economic Welfare." In *Advertising and the Public Interest* (S.F. Divita, Editor), Chicago: American Marketing Association, 1974, pp. 82-97.

"Promoting Competition in Tomorrow's Markets for Solar Energy Systems." In *The Solar Market: Proceedings of the Symposium on Competition in the Solar Energy Industry*. U.S. Federal Trade Commission, Washington, D.C.: U.S. Government Printing Office, 1978, pp. 119-135.

"Cartel and Oligopoly Pricing of Nonreplenishable Natural Resources" (with T.R. Lewis). In *Dynamic Optimization and Mathematical Economics* (P.T. Liu, Editor), New York: Plenum, 1980, pp. 133-156.

"The New Industrial Organization and the Economic Analysis of Modern Markets." In *Advances in Economic Theory* (W. Hildenbrand, Editor), Cambridge: Cambridge University Press, 1982, pp. 253-285.

"Optimal Use of Renewable Resources with Nonconvexities in Production" (with T.R. Lewis). In *Essays in the Economics of Renewable Resources* (J. Mirman and D.F. Spulber, Editors), Amsterdam: North-Holland, 1982, pp. 95-111.

"Advertising and Market Structure." In *New Developments in the Analysis of Market Structure* (J.E. Stiglitz and G.F. Mathewson, Editors), Cambridge: MIT Press, 1986, pp. 373-396.

"Standards for Dominant Firm Conduct: What Can Economics Contribute?" In *The Economics of Market Dominance* (D. Hay and J. Vickers, Editors), Oxford: Basil Blackwell, 1987, pp. 61-88.

"Advertising." In *The New Palgrave*, Vol. 1 (J. Eatwell, M. Milgate, and P. Newman, Editors), New York: Macmillan, 1987, pp. 34-36.

"Industrial Organization." In *The New Palgrave*, Vol. 2 (J. Eatwell, M. Milgate and P. Newman, Editors), New York: Macmillan, 1987, pp. 803-808.

"George Stigler's Contributions to Microeconomics and Industrial Organization." In *The New Palgrave*, Vol. 4 (J. Eatwell, M. Milgate and P. Newman, Editors), New York: Macmillan, 1987, pp. 499-500.

"The Potential of Incentive Regulation." In *The Market for Energy* (D. Helm, J. Kay and D. Thompson, Editors), Oxford: Clarendon Press, 1989, pp. 178-187.

"Inter-Industry Studies of Structure and Performance." In *Handbook of Industrial Organization*, Vol. 2 (R. Schmalensee and R.D. Willig, Editors), Amsterdam: North-Holland, 1989, pp. 951-1009.

"Empirical Models of Rivalrous Behavior." In *Industrial Structure in the New Industrial Economics* (G. Bonanno and D. Brandolini, Editors), Oxford: Oxford University Press, 1990, pp. 138-167.

"Economías del Tamaño Empresarial y Poder de Mercado" and "Innovación y Posición Competitiva." In *Concentración Empresarial y Competitividad: España en la C.E.E.* (Xavier Vives and Jordi Gual, Editors), Barcelona: Ariel Economía, 1990, pp. 55-67 and 119-131.

"Agreements Between Competitors." In *Antitrust, Innovation, and Competitiveness* (T.M. Jorde and D.J. Teece, Editors), Oxford: Oxford University Press, 1992, pp. 98-118.

"How Should We Address Economic Costs of Climate Change?" In *Global Climate Change: The Economic Costs of Mitigation and Adaptation* (J.C. White, ed.), New York: Elsevier, 1991, pp. 73-76.

#### OTHER PUBLICATIONS:

"The Computer Model of Energy Production Without Fast Breeder Reactors" and "The Computer Model of Fast Breeder Demands and Prices" (with P.W. MacAvoy). Appendices E and F in *Economic Strategy for Developing Nuclear Breeder Reactors* by P.W. MacAvoy, Cambridge: MIT Press, 1969, pp. 186-199.

"Theory, Fact, and Policy: A Reply to Professor Barten." *Recherches Economiques de Louvain*, Vol. 41 (March 1975), pp. 63-66.

*Measuring External Effects of Solid Waste Management* (with R. Ramanathan, W. Ramm, and D. Smallwood). Washington, D.C.: U.S. Environmental Protection Agency, Socioeconomic Environmental Studies Series, 1975.

"Option Demand and Consumer's Surplus: Reply," *American Economic Review*, Vol. 65 (September 1975), pp. 737-739.

"Advertising, Concentration, and Profits: Comment." In *Issues in Advertising: The Economics of Persuasion* (D.C. Tuerck, Editor). Washington, D.C.: American Enterprise Institute, 1978, pp. 280-284.

"Remarks." In *The Conglomerate Corporation* (R.D. Blair and R.F. Lanzillotti, Editors), Cambridge: Oelgeschlager, Gunn & Main, 1981, pp. 365-368.

"Income-Distributional Concerns in Regulatory Policymaking: Comment." In *Studies in Public Regulation* (G. Fromm, Editor), Cambridge: MIT Press, 1981, pp. 112-117.

"Comment on Beales, Craswell, and Salop," *Journal of Law and Economics*, Vol. 24 (December 1981), pp. 541-544.

Review of C.C. von Weizsacker, *Barriers to Entry*, *Journal of Economic Literature*, Vol. 21 (June 1983), pp. 562-564.

"Comments." In *Telecommunications Access and Public Policy* (A. Baughcum and G.R. Faulhaber, Editors), Norwood, N.J.: Ablex, 1984, pp. 76-80.

Review of D.J. Teece, ed., "The Competitive Challenge," *Journal of Economic Literature*, Vol. 26 (December 1988), pp. 1779-1780.

"Comment on Mannering and Winston." *Brookings Papers on Economic Activity: Microeconomics*, 1991, pp. 107-110.

"A Comprehensive and Balanced Energy Policy." *Environmental Forum*, Vol. 8 (May/June 1991), pp. 41-42.

June 1992

## WILLIAM E. TAYLOR

### BUSINESS ADDRESS

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Dr. Taylor received a B.A. *magna cum laude* in Economics from Harvard College, an M.A. in Statistics and a Ph.D. in Economics from the University of California at Berkeley. He has taught economics, statistics, and econometrics at Cornell and the Massachusetts Institute of Technology and was a Research Fellow at the Center for Operations Research and Econometrics at the University of Louvain, Belgium.

At NERA, Dr. Taylor has worked primarily in the field of telecommunications economics on problems of state and federal regulatory reform, competition policy, economic issues concerning broadband network architectures, quantitative analyses of state and federal price cap and incentive regulation proposals, and antitrust and contract litigation in telecommunications markets. He has applied the economic theories of price squeezes and cross-subsidization to long distance telephone, Centrex, and public telephone markets. In the area of environmental regulation, Dr. Taylor has worked on statistical issues in the measurement of emissions levels from coal-fired electric power generators and municipal waste-to-energy facilities.

He has published extensively in the areas of telecommunications policy related to access and in theoretical and applied econometrics. His articles have appeared in numerous telecommunications industry publications as well as *Econometrica*, the *American Economic Review*, the *International Economic Review*, the *Journal of Econometrics*, *Econometric Reviews*, the *Antitrust Law Journal*, *The Review of Industrial Organization*, and *The Encyclopedia of Statistical Sciences*. He has served as a referee for these journals (and others) and the National Science Foundation and is currently an Associate Editor of the *Journal of Econometrics*.

### EDUCATION

UNIVERSITY OF CALIFORNIA, BERKELEY  
Ph.D., Economics, 1974

UNIVERSITY OF CALIFORNIA, BERKELEY  
M.A., Statistics, 1970

HARVARD COLLEGE  
B.A., Economics, 1968  
(Magna Cum Laude)

## EMPLOYMENT

- 1988- **NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC. (NERA)**  
Senior Vice President, Vice President. Dr. Taylor has been responsible for studies concerning the interaction of regulation and competition in various telecommunications markets, including pay telephones, operator services, and large business switched services, the efficiency benefits of state regulatory reforms such as price caps and incentive regulation, the structure of costs and rates in a broadband ISDN network, historical comparisons of rate-of-return and price cap regulation of interstate telephone access charges, carrier access charges and bypass, regulatory and antitrust concerns with intraLATA competition, and contract and antitrust litigation in the paging industry. In the area of environmental regulation, he has studied statistical problems associated with measuring the level and rate of change of emissions.
- 1983-1988 **BELL COMMUNICATIONS RESEARCH, INC. (Bellcore)**  
Division Manager, Economic Analysis, formerly Central Services Organization, formerly American Telephone and Telegraph Company. While at Bellcore, Dr. Taylor performed theoretical and quantitative research focusing on problems raised by the implementation of access charges. His work included design and implementation of demand response forecasting for interstate access demand, quantification of potential bypass liability, design of optimal nonlinear price schedules for access charges, design and quantification of methods to disaggregate carrier common line charges, and theoretical and quantitative analysis of price cap regulation of access charges.
- 1985- Journal of Econometrics, North-Holland Publishing Company.  
Associate Editor.
- 1975-1983 **BELL TELEPHONE LABORATORIES**  
Member, Technical Staff, Economics Research Center. Performed basic research on theoretical and applied econometrics, focusing on small sample theory, panel data and simultaneous equations systems.
- Fall 1977 **MASSACHUSETTS INSTITUTE OF TECHNOLOGY**  
Visiting Associate Professor, Department of Economics. Taught graduate courses in econometrics.
- 1972-1975 **CORNELL UNIVERSITY**  
Assistant Professor, Department of Economics. (On leave 1974-1975.) Taught graduate and undergraduate courses on econometrics, microeconomic theory and principles.
- 1974-1975 **CENTER FOR OPERATIONS RESEARCH AND ECONOMETRICS**  
 Université Catholique de Louvain, Belgium.  
Research Associate. Performed post-doctoral research on finite sample econometric theory and on cost function estimation.
- 1973-1974 **BELL TELEPHONE LABORATORIES**  
Consultant.

## TESTIMONIES

Florida Public Service Commission (Docket No. 820537-TP) on behalf of Southern Bell Telephone and Telegraph Company: economic analysis of premium intraLATA access charges. Filed July 22, 1983.

Arkansas Public Service Commission (Docket No. 83-042-U) on behalf of Southwestern Bell Telephone Company: economic analysis of non-traffic sensitive cost recovery proposals. Filed October 7, 1985.

Florida Public Service Commission (Docket No. 820400-TP) on behalf of Southern Bell Telephone and Telegraph Company: economic principles underlying a proposed method for calculating marginal costs for private lines services. Filed June 25, 1986.

Federal Communications Commission (Docket No. 87-313) on behalf of Bell Communications Research, Inc.: empirical analysis of the United States Telephone Association proposal for price cap regulation of interstate access service, entitled "The Impact of Federal Price Cap Regulation on Interstate Toll Customers". Filed March 17, 1988.

Florida Public Service Commission (Docket No. 880069-TL) on behalf of Southern Bell Telephone and Telegraph Company: economic incentives for firms under the proposed Florida Rate Stabilization Plan. Filed June 10, 1988.

California Public Utilities Commission (Case 88-04-029) on behalf of Pacific Bell: commission payment practices, cross-subsidization of pay telephones, and compensation payments to competitive pay telephone suppliers. Filed July 11, 1988.

Federal Communications Commission (Docket No. 87-313) on behalf of Bell Communications Research, Inc.: empirical analysis of the price cap plan proposed in the FCC Further Notice of Proposed Rulemaking, entitled "The Impact of the FCC Proposed Price Cap Plan on Interstate Consumers". Filed August 18, 1988.

Federal Communications Commission (Docket No. 87-313) on behalf of Bell Communications Research, Inc.: Rebuttal analysis of intervenor comments on "The Impact of the FCC Proposed Price Cap Plan on Interstate Consumers". Filed November 18, 1988.

New Hampshire Public Service Commission (Docket 89-010)) on behalf of New England Telephone & Telegraph Company: appropriate level and structure of productivity adjustments in a proposed price regulation plan. Filed March 3, 1989.

Delaware Public Service Commission (Docket No. 86-20, Phase II) on behalf of The Diamond State Telephone Company: appropriate costing and pricing methods for a regulated firm facing competition, in connection with a proposed rate reduction. Filed March 31, 1989. Rebuttal testimony filed November 17, 1989.

Federal Communications Commission (Docket No. 87-313) on behalf of the United States Telephone Association: analysis of an AT&T filing and an empirical analysis of productivity growth under price cap regulation, entitled "Analysis of AT&T's Comparison of Interstate Access Charges Under Incentive Regulation and Rate of Return Regulation." Filed as Reply Comments regarding the FCC's Report and Order and Second Further Notice of Proposed Rulemaking in CC Docket 87-313, August 3, 1989.

New York State Public Service Commission (Case 28961 - Fifth Stage) on behalf of New York Telephone Company: appropriate level and structure of productivity adjustments in a proposed price regulation plan. Filed September 15, 1989.

Georgia Public Service Commission (Docket No. 3882-U) on behalf of Southern Bell Telephone and Telegraph Company: analysis of incentive regulation plans. Filed September 29, 1989.

Public Utility Commission of Texas (Docket No. 8585) on behalf of Southwestern Bell Telephone Company: analysis of Texas intrastate switched access charges and bypass of switched access. Filed December 18, 1989.

Federal Communications Commission (Docket 87-313) on behalf of the United States Telephone Association: analysis of appropriate productivity offsets for local exchange carriers in the FCC price cap plan, entitled "Local Exchange Carrier Productivity Offsets for the FCC Price Cap Plan," May 3, 1990.

Federal Communications Commission (Docket 87-313) on behalf of the United States Telephone Association: analysis of appropriate productivity offsets for local exchange carriers in the FCC price cap plan, entitled "Productivity Offsets for LEC Interstate Access," June 8, 1990.

Federal Communications Commission (Docket 87-313) on behalf of the United States Telephone Association: analysis of appropriate productivity offsets for mid-size telephone companies in the FCC price cap plan, entitled "Interstate Access Productivity Offsets for Mid-Size Telephone Companies," June 8, 1990.

State of Maine Public Utilities Commission (Docket No. 89-397) on behalf of New England Telephone & Telegraph Company: theoretical and historical analysis of incentive regulation in telecommunications, entitled "Incentive Regulation in Telecommunications," filed June 15, 1990.

Illinois Commerce Commission (Docket No. 88-0412) on behalf of Illinois Bell

Arizona State Air Pollution Control Hearing Board (Docket No. A-90-02) on behalf of Arizona Public Service Company. A statistical study of SO<sub>2</sub> emissions entitled, "Analysis of Cholla Unit 2 SO<sub>2</sub> Compliance Test Data," (October 24, 1990) and an Affidavit (December 7, 1990).

Canadian Radio-Television and Telecommunications Commission (Docket No. 1990-73) on behalf of Bell Canada: "The Effect of Competition on U.S. Telecommunications Performance," (with L.J. Perl). Filed November 30, 1990.

New Jersey Board of Public Utilities (Docket No. TX90050349) on behalf of New Jersey Bell Telephone Company: theoretical and empirical analysis of the Board's intraLATA compensation policy. Filed December 6, 1990.

Federal Communications Commission (Docket 87-313) on behalf of the United States Telephone Association: analysis of total factor productivity calculations, entitled "Productivity Measurements in the Price Cap Docket," December 21, 1990.

Tennessee Public Service Commission (In re: The Promulgation of Agency Statements of General Applicability to Telephone Companies That Prescribe New Policies and Procedures for Their Regulation) on behalf of South Central Bell Telephone Company: theoretical analysis and appraisal of the proposed Tennessee Regulatory Reform Plan. Filed February 20, 1991.

Florida Public Service Commission (Docket No. 900633-TL) on behalf of Southern Bell Telephone and Telegraph Company: alternative measures of cross-subsidization. May 9, 1991.

Federal Communications Commission (Docket 87-313) on behalf of BellSouth Corporation, "The Treatment of New Services under Price Cap Regulation," (with Alfred E. Kahn), June 12, 1991.

Federal Communications Commission (Docket 91-141, In the Matter of Expanded Interconnection with Local Telephone Company Facilities) on behalf of Bell Atlantic, "Effects of Competitive Entry in the U.S. Interstate Toll Markets." August 6, 1991.

California Public Utilities Commission (Phase II of Case 90-07-037) on behalf of Pacific Bell: economic analysis of the effects of FAS 106, (accrual accounting for post-retirement benefits other than pensions) under state price cap regulation, (with Timothy J. Tardiff). Filed August 30, 1991. Supplemental testimony filed January 21, 1992.

Federal Communications Commission (Docket 91-141, In the Matter of Expanded Interconnection with Local Telephone Company Facilities) on behalf of Southwestern Bell, "Economic Effects of the FCC's Tentative Proposal for Interstate Access Transport Services." Filed September 20, 1991.

Rhode Island Public Utilities Commission (Docket No. 1997) on behalf of New England Telephone & Telegraph Company, "Rhode Island Price Regulation Plan," analysis of proposed price regulation plan and evidence of the effects of incentive regulation on prices and infrastructure development. Filed September 30, 1991.

Montana Public Service Commission (Docket No. 90.12.86) on behalf of US West  
Communications: economic analysis of a proposed incentive regulation plan. Filed  
November 4, 1991. Additional testimony filed January 15, 1992.

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**In the Matter of**

# Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems

**PR DOCKET 93-61**  
**RM 8013**

**To: The Commission**

**DECLARATION OF PAUL JANSSEN**

PAUL JANSEN, hereby declares under penalty of perjury as follows:

1. I am a Principal of McKinsey & Company, Inc. an international management consulting firm.

2. McKinsey & Company was retained to assist in the assessment of the business of Pactel Teletrac (Teletrac). As a part of that task, we reviewed the potential future market for location and related services. Estimates of Teletrac's cost were provided by Teletrac's technical staff. Teletrac has asked us to submit some of the conclusions we reached in our review for consideration by the Federal Communications Commission in its proceeding to adopt permanent rules governing location monitoring services (LMS).

3. We concluded that Teletrac has the potential to provide an array of location and related services, but that to succeed in the highly competitive markets for such services it needs to be able to offer a high capacity system, at low cost to consumers, which can be used for personal as well as vehicle location services. Unless Teletrac is able to develop and market a small low-cost receiver and to develop and deploy a high capacity system, it is unlikely that Teletrac will prove viable in the highly competitive markets of the late 1990s.

4. Among the major market segments for Teletrac's LMS service are fleet location, personal locator services, consumer (i.e. security and commuter) services, and ancillary data services.

5. To provide services in the major LMS market segments of the industry, we believe that Teletrac will have to provide miniaturized devices with low power consumption. Key requirements include a low product price and low monthly fees. At a competitive cost, the distinctive feature advantages of the Teletrac system could allow it to capture a sufficient share of these markets to be an attractive candidate for investment.

6. LMS is a high fixed cost business. Teletrac must have a substantial subscriber base in many metropolitan areas in order to recover its fixed costs and provide a viable service at the low costs to users it needs to compete.

7. If Teletac is unable to deploy miniaturised, low power transceiver units, or to deploy its upgraded system with increased capacity, its revenues over the next twenty year period will likely be too small to allow Teletac to be economically attractive.



**In the Matter of**

**Amendment of Part 90**  
**of the Commission's Rules**  
**to Adopt Regulations**  
**for Automatic Vehicle**  
**Monitoring Systems**

**Dated: June 29, 1993**

**SUMMARY OF THE RULEMAKING PROCEEDINGS LEADING TO  
ADOPTION OF THE 1974 INTERIM AVM RULES**

The Commission's interim AVM rules were adopted in July, 1974, following nearly six years of administrative proceedings. During that time, the Commission issued two notices of inquiry and considered thousands of pages of comments, as well as a Petition for Rulemaking filed by Hazeltine Corp., which proposed to market wideband pulse-ranging AVM technology. Tracking Hazeltine's proposal closely, the Commission issued rules which assigned pulse-ranging AVM systems requiring 8 MHz bandwidth to the 904-912 MHz or 918-926 MHz bands, while assigning narrowband AVM systems to separate bands at 903-904 and 926-927 MHz.<sup>1</sup> The Report and Order adopting the rules explained that "under this approach, two separate wideband AVM systems may be accommodated in each market."<sup>2</sup>

A review of the proceedings leading to adoption of the interim AVM rules leads to the following conclusions.

- The Commission expressly invited inquiry as to whether single or multiple AVM systems should be licensed, and numerous commenters addressed the benefits of licensing one or two systems in a market.
- No commenter proposed that multiple wideband systems share frequencies, or offered any explanation as to how spectrum sharing could feasibly be accomplished.
- Even those commenters who supported multiple systems did not suggest that co-channel sharing among systems was the answer. Rather, they urged that some spectrum be set aside for narrowband and other alternative systems, an action the Commission took by allocating 903-904 and 926-927 MHz to developmental systems.

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<sup>1</sup> 47 C.F.R. § 90.239(c).

<sup>2</sup> 30 R.R.2d 1665, 1671 (1974).